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notwithstanding these occasional slips, Professor Perkins has done a very useful work in a line where his example may well be followed.

North American Pselaphidæ.—Messrs. E. Brendel and H. F. Wickham have lately published in the Bulletin from the Natural History Laboratories of the Iowa State University (Vol. I., pp. 216–304, and Vol. II., pp. 1–84) a Monograph of the Pselaphidæ of North America, which shows evidence of much careful work. Seven plates from stipple drawings by Dr. Brendel, the senior author, fairly well represent the species described. This monograph will be a great help in the determination of species in this difficult family of beetles.

MICROSCOPY.[1]

Direct Division of the Nucleus in the Enteric Epithelium of Rhabdonema nigrovenosum.[2]—Prof. Hoyer finds in the epithelium lining the alimentary tract of Rhabdonema good material for demonstrating the so-called "direct" division of nuclei. Hoyer admits, however, that his preparations are not conclusive evidence of such division.

Following Kultzitzky's method, Prof. Hoyer killed the Nematodes in "strong alcohol," stained in alcoholic borax-carmine 24hs., decolorized in acidified alcohol 1h. (strong alcohol + 1% HCl.), transferred to glacial acetic acid (15m.), then to a mixture in equal parts of glacial acetic acid with creosote, then to pure creosote, and finally mounted in creosote balsam.

Such treatment, we should think, would be likely to bring out "direct" division. We agree with Hoyer that the case needs further investigation.

Culture of the Larvæ of Ascidians, Worms, Echinoderms, etc.[3]—Dr. Ch. Julin has found the following method, suggested by Prof. Giard, to be very useful in rearing larvæ of various kinds. Material for the study of the formation of the colonies of compound Ascidians may be easily obtained in this way:

Collect the free larvæ in a pipette at the time of hatching, and place them in covered watch-glasses containing clean sea-water. Keep them protected from the light (half-dark). "Thus kept, they develop quite normally. I have thus been able to obtain excellent material for the Ascidians, and I have made successful cultures of many kinds of Annelid larvæ."

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[1] Edited by C. O. Whitman, Clark University, Worcester, Mass.

[2] H. Hoyer. *Anat. Anz.*, V., 1, Jan. 1890, p. 26.

[3] Extracted from a letter from Dr. Ch. Julin to Dr. Minot, dated Sept. 3, 1889.

Preservation of Siphonophora.[4]—Bedot proceeds as follows: The colony is immersed in a 15–20 per cent. aqueous solution of sulphate of copper. At the same time sea-water is poured in along with the colony, in such bulk that the copper solution is ten times as great. After fixation, which happens in a few minutes, a few drops of nitric acid are added to the solution, and the mixture is gently stirred up with a glass rod, in order to prevent the formation of any precipitate. After four or five hours the preparation is to be further hardened in Flemming's mixture:

Chromic acid (1 per cent.)	15 parts.
Osmic acid (2 per cent.)	4 parts.
Glacial acetic acid	1 part.

This fluid should be allowed to act twenty-four hours, and should be twice the volume of the copper solution. A few drops of 25 per cent. alcohol are next added to the fluid, and the quantity and strength of the alcohol gradually increased, until in fifteen days 70 per cent. may be used, and finally 90 per cent.

For Tracing Nerve Fibres in the Brain.[5]—For the study of the finer structure of the fore-brain of Amphibia, Oyarzun recommends Golgi's silver method, as improved by Ramon y Cajal (*Anat. Anz.*, V., 3, 1890, p. 85). The brain is treated first twenty-four hours in the following mixture (kept dark):

Bichromate of potash (3 per cent. aqueous solution)	20 parts.
Osmic acid (1 per cent.)	5 parts.

After washing some seconds, the preparation is placed in silver nitrate solution, which should be renewed once; it is then exposed to the light. The silver solution consists of

Argentum nitric cryst.	75 gr.
Aq. dist.	100 c.cm.

This solution is followed after twenty-four hours by alcohol, to complete the hardening.

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[4] *Arch. Sci. Phys. et Nat.*, XXI., 1889, p. 556; *Jour. Roy. Mic. Soc.*, Dec. 1889, p. 832.

[5] Oyarzun. *Arch. f. Mik. Anat.* XXXV., 3. 1890, p. 380.

New Methods of Staining Nerves with Methylblue.[6]—Prof. Dogiel says that nerves may be stained with methylblue, not only in muscles, but also in other organs, and in a simpler way than that of Ehrlich. It is sufficient simply to inject the vessels of the organ with a 4 per cent. solution of methylblue in the physiological salt solution. The injection is performed immediately after the death of the animal. Usually the organ is left *in situ* until the stain takes effect; but, if sufficiently thin, it can be cut out and placed in a drop of aqueous humor, and watched under the microscope until the desired effect appears. In the first case the organ must be laid bare, and its cavities, if it have any, must be opened. The stain may appear in the course of a few minutes, but often only after an hour or two. In the second case the conditions are most favorable, not only for staining, but for observing the action of the stain and noting the exact time for fixation.

A simpler method still may be employed for the demonstration of nerves in certain organs and tissues. The tissue is taken from the animal while living, or just after killing, and placed on a slide or in a watch-glass in a few drops of aqueous humor, to which are added 2–3 drops of a $\frac{1}{15}-\frac{1}{16}$ per cent. methylblue solution in the physiological salt solution. Ordinarily the stain appears in the nerves in 5–10 minutes; but the time depends much upon the thickness of the tissue. In the retina, for example, 2–3 hours or more may be required to bring out the nerves of the different layers. The nerves of cold-blooded animals stain more slowly than those of warm-blooded ones.

The fixation of the color may be accomplished conveniently by picrate of ammonium, which produces a fine, granular, violet precipitate with the methylblue, and at the same time renders the tissues quite transparent. This reagent also softens the tissue, so that it can easily be separated by the aid of needles. Twenty to thirty minutes are usually sufficient to fix the stain; but thick tissues may require from two to twelve hours.

It is important that the original blue color be made to pass into a violet without the least tinge of green; otherwise the preparation may quickly fade.

The preparation may be mounted in dilute glycerine.

A saturated alcoholic solution of picrate of ammonia will harden the tissue, so that it can be cut in pith or liver, and the sections mounted in glycerine.

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[6] Dogiel. *Arch. f. Mik. Anat.*, XXXV., 3, 1890, pp. 306–312.